Add and Subtract Like Fractions
Chapter 4 Lesson 3
Replace each • with <, >, or = to make a true statement. Use a number line if necessary.

1. \(-\frac{4}{7}\) • \(-\frac{2}{3}\)
2. \(1\frac{4}{13}\) • \(1\frac{4}{5}\)
3. \(\frac{7}{16}\) • \(\frac{3}{13}\)
4. \(-2\frac{3}{8}\) • \(-2\frac{6}{16}\)

List each set of numbers in order from least to greatest.

5. 0.75, \(\frac{2}{3}\), 65%
6. \(-3.55\), \(-3.46\), \(-3\frac{27}{50}\)

7. **TEST PRACTICE** In one litter of kittens, 2 out of 5 were male. In a second litter, 4 out of 6 were male. Which litter had the greater percent of male kittens?
   A. litter 1
   B. litter 2
   C. The ratios are equal.
   D. not enough information to determine
ANSWERS

1. >
2. <
3. >
4. =
5. 65%, $\frac{2}{3}$, 0.75
6. $-3.55$, $-3\frac{27}{50}$, $-3.46$
7. B
Vocabulary

Like Fractions – Fractions that have the same denominator.

Example: \( \frac{2}{3} \) and \( \frac{1}{3} \), \( \frac{11}{12} \) and \( \frac{4}{12} \)
### Key Concept: Add or Subtract Like Fractions

**Words:**
To add or subtract like fractions, add or subtract the numerators and write the result over the denominator.

**Examples**

<table>
<thead>
<tr>
<th>Numbers</th>
<th>Algebra</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{5}{10} + \frac{2}{10} = \frac{5+2}{10} = \frac{7}{10} )</td>
<td>( \frac{a}{c} + \frac{b}{c} = \frac{a+b}{c} ), where ( c \neq 0 )</td>
</tr>
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<td>( \frac{11}{12} - \frac{4}{12} = \frac{11-4}{12} = \frac{7}{12} )</td>
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**Video - 4 mins**
Example 1

1. Add $\frac{5}{9} + \frac{2}{9}$. Write in simplest form.

1. $\frac{5}{9} + \frac{2}{9} = \frac{5 + 2}{9}$

Add the numerators.

2. $= \frac{7}{9}$

Simplify.

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Graph showing fractions on a number line.
Example 2

2. Add $-\frac{3}{5} + \left(-\frac{1}{5}\right)$. Write in simplest form.

1. $-\frac{3}{5} + \left(-\frac{1}{5}\right) = \frac{-3}{5} + \left(-\frac{1}{5}\right)$
   
   Add the numerators.

2. $= \frac{-3 + (-1)}{5}$
   
   Use the rules for adding integers.

3. $= -\frac{4}{5}$ or $-\frac{4}{5}$
Practice Problems

1. Find $\frac{7}{12} + \frac{5}{12}$. Write in simplest form.

2. Find $-\frac{4}{6} + \left(-\frac{1}{6}\right)$. Write in simplest form.
Answers to Practice Problems

1. Answer: 1

2. Answer: $-\frac{5}{6}$
Example 3

3. Sofia ate $\frac{3}{5}$ of a cheese pizza. Jack ate $\frac{1}{5}$ of a cheese pizza and $\frac{2}{5}$ of a pepperoni pizza. How much pizza did Sofia and Jack eat altogether?

1. $\frac{3}{5} + \left(\frac{1}{5} + \frac{2}{5}\right) = \frac{3}{5} + \left(\frac{2}{5} + \frac{1}{5}\right)$
   
   Commutative Property of Addition

2. $\left(\frac{3}{5} + \frac{2}{5}\right) + \frac{1}{5}$
   
   Associative Property of Addition

3. $= 1 + \frac{1}{5}$ or $1\frac{1}{5}$
   
   Simplify.

4. So, Sofia and Jack ate $1\frac{1}{5}$ pizzas altogether.
Example 4

4. Find \(-\frac{5}{8} - \frac{3}{8}\).

1. \(-\frac{5}{8} - \frac{3}{8} = -\frac{5}{8} + \left(-\frac{3}{8}\right)\)  
   Add \(-\frac{3}{8}\).

2. \(= \frac{-5 + (-3)}{8}\)  
   Add the numerators.

3. \(= -\frac{8}{8} \text{ or } -1\)  
   Simplify.
Practice Problems

3. On Monday, Kieffer worked on a project for $\frac{3}{10}$ of an hour. On Tuesday, he worked on it for $\frac{7}{10}$ of an hour and on Wednesday he worked for $\frac{9}{10}$ of an hour. How much time did he spend working on his project?

4. Find $-\frac{7}{10} - \frac{2}{10}$. Write in simplest form.
Answers to Practice Problems

3. Answer: $1 \frac{9}{10}$ h

4. Answer: $- \frac{9}{10}$
5. Find $\frac{5}{8} - \frac{7}{8}$.

1. $\frac{5}{8} - \frac{7}{8} = \frac{5 - 7}{8}$
   Subtract the numerators.

2. $= -\frac{2}{8}$ or $-\frac{1}{4}$
   Simplify.

3. Diagram showing the subtraction of $\frac{5}{8}$ from $\frac{7}{8}$ on a number line.
Example 6

6. About $\frac{6}{100}$ of the population of the United States lives in Florida. Another $\frac{4}{100}$ lives in Ohio. About what fraction more of the U.S. population lives in Florida than in Ohio?

1. $\frac{6}{100} - \frac{4}{100} = \frac{6 - 4}{100}$
   Subtract the numerators.

2. $= \frac{2}{100}$ or $\frac{1}{50}$
   Simplify.

3. About $\frac{1}{50}$ more of the U.S. population lives in Florida than in Ohio.
Practice Problems

5. Find $\frac{3}{12} - \frac{9}{12}$. Write in simplest form.

6. A picture mounted on art board is $\frac{1}{8}$ inch thick. The frame for the picture is $\frac{5}{8}$ inch thick. How much thicker than the picture is the frame?
Answers to Practice Problems

5. \(-\frac{1}{2}\)

6.\(\frac{1}{2}\) in.
The next lesson is about adding and subtracting fractions with unlike denominators.

How do you think what you learned in this lesson will connect with the next lesson?
Homework

Pages 287 - 290

#1 - 13 all

and 26 - 36 evens